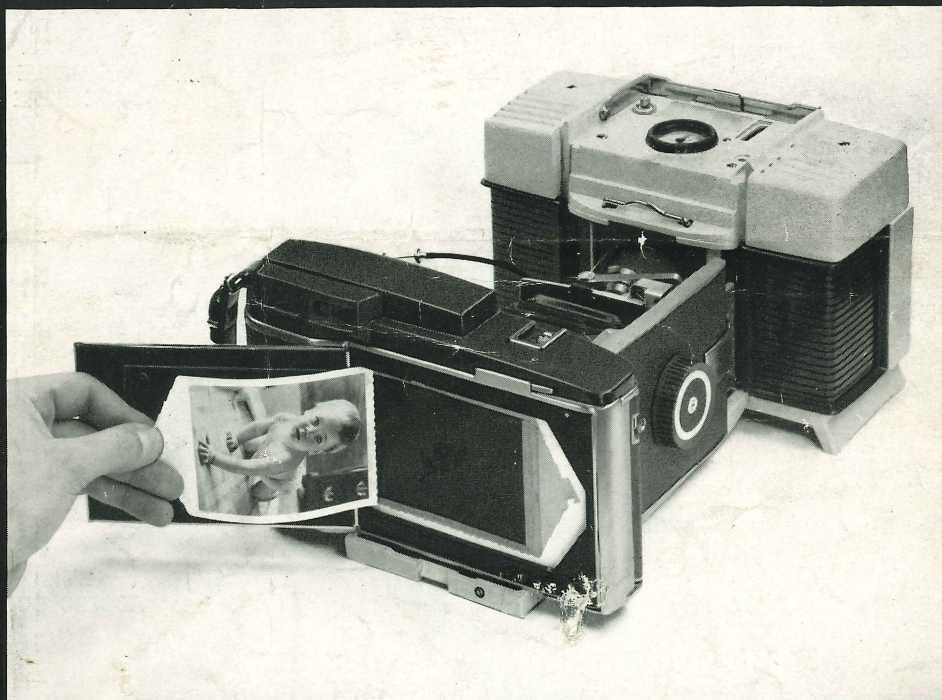


How to use the
POLAROID®
PRINT COPIER
Model 2401



For use with Polaroid Land Camera models
110 and 110A

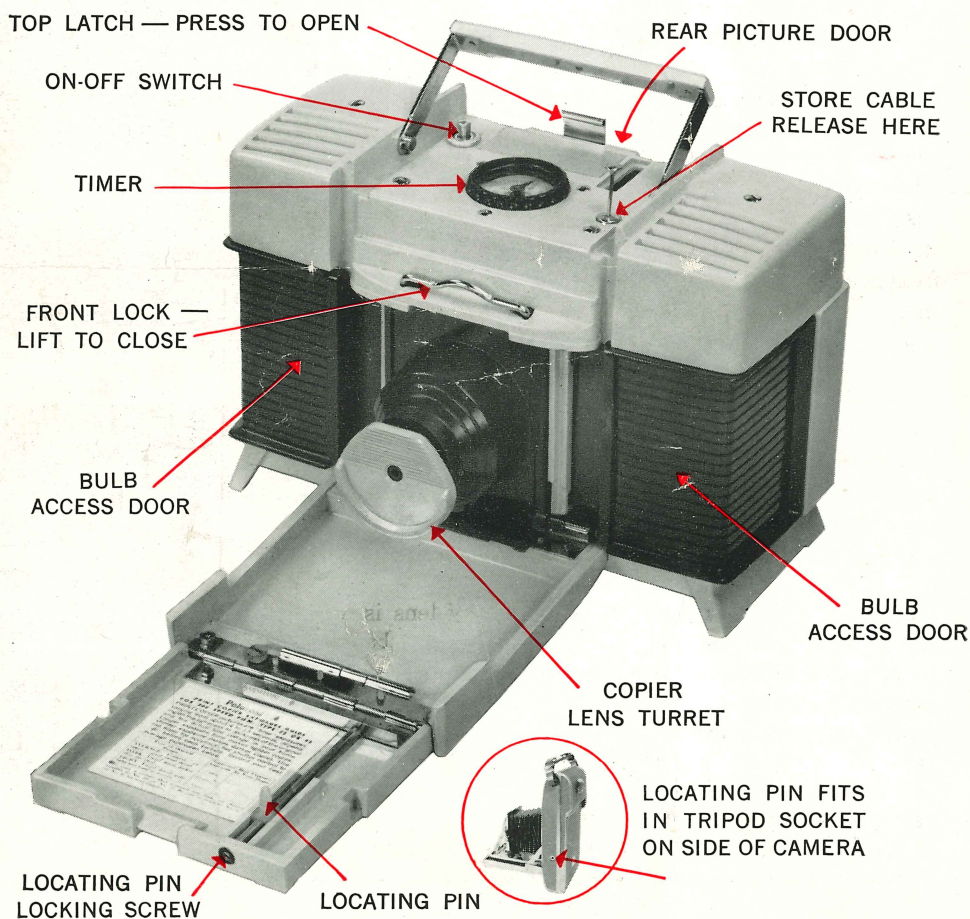
How to use the Polaroid Print Copier — Model 2401

Your Polaroid Print Copier lets you make duplicates of Polaroid Land Pictures in your own camera. Please take a few minutes to read these instructions before attempting to use the Print Copier. If you follow them correctly, you will get copies that are difficult to distinguish from the original.

Faithfulness of reproduction will depend on:

- Use of Type 42 Film for both original and copy
- Sharpness of the original print
- Proper exposure

Note these parts so that you can identify them:



CAUTION: When closing Print Copier, remember to lift Front Lock first, before attempting to fold up covers.

1. HOW TO MOUNT CAMERA ON PRINT COPIER

Place Print Copier on a perfectly flat, steady surface.

To open, release top latch (A) and unfold hinged top and front pieces. Lower these carefully and lay them flat.

Before placing your camera on the Print Copier make the following settings on the camera.

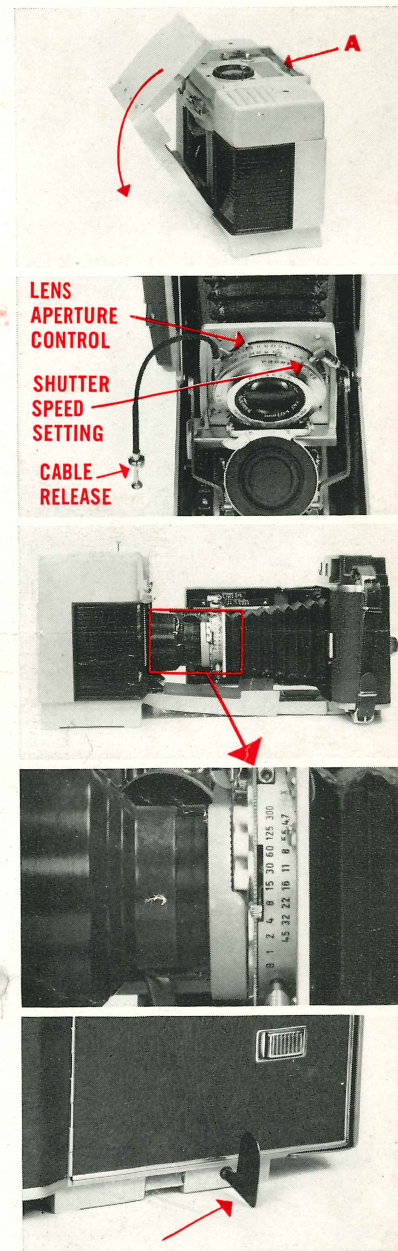
- Open lens cover
- Focus camera at $3\frac{1}{2}$ feet
- Set lens aperture at $f/4.7$ ($f/4.5$ on Model 110)
- Set shutter speed on "B"
- Attach cable release

Place camera on Print Copier so that camera lens rests in copier lens turret and locating pin fits in camera tripod socket. You will feel it drop into position. Camera will then be held securely in place. You should be able to lift camera off pin and replace easily without disturbing $3\frac{1}{2}$ ft. focus. (If you own a Model 110, see page 7.)

Camera lens should just nestle against Print Copier lens turret as shown. With camera properly focused at $3\frac{1}{2}$ feet, the clearance should be no greater than the width of a paper match. Do not force if the fit is too snug.

NOTE: If fit of camera lens against copy lens is too tight or too loose, you may have to adjust the locating pin slightly. Here's how to do it: To reposition locating pin, insert metal key supplied with Copier into screw head beneath positioned camera. Twist 90 degrees ($\frac{1}{4}$ turn) to left. This will unlock locating pin and permit you to slide camera slightly forward or backward until it fits properly. Then lock locating pin with turn to right. This adjustment need be made only once.

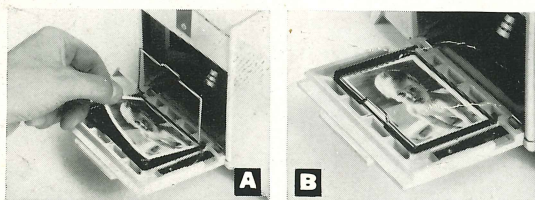
With camera in position, you are ready to make a copy



2. HOW TO MAKE A COPY

Plug Print Copier into 110-120 volt A.C. outlet and turn on. Both lights (left and right) should light and timer should start.

Open back door of Copier and raise wire frame. Place picture to be copied in back door holder, being careful to slide picture all the way down into position. Picture should lie flat, held down by wire frame. Close back door. Picture is now ready to be copied.



How to Make the Exposure

Each copy you make will be a "time" exposure of several seconds, which means that the shutter must remain open throughout the exposure. When you set shutter speed to "B", the shutter remains open as long as you hold the shutter release down.

Correct Exposure Depends on:

A. The lightness or darkness of the original picture.

B. The actual line voltage in your home. (Line voltage may vary between 105 and 125 volts.) Low line voltage will require 3 to 5 seconds more exposure than normal. The exposure guide on the inside of the Print Copier provides blank spaces in which you can record actual exposure times which seem best in your home.

Under ideal conditions, a normal print requires about a 7-second exposure with 200-speed Type 42 picture roll.

HOW TO JUDGE THE LIGHTNESS OR DARKNESS OF ORIGINAL PRINT

Most of the pictures you copy will be those of people, and the best copy will be that which reproduces the facial detail best, regardless of the tones of the rest of the scene. Study the faces in the original carefully. If they are on the light side with substantial "highlight" (completely white) areas or with very light gray tones predominating, exposure should be 2-3 seconds less than the normal 7 seconds. If facial tones are predominantly dark gray or with sizeable shadow areas, exposure should be increased 4-6 seconds.

		LIGHT	NORMAL	DARK
ORIGINAL				
	FACIAL DETAIL TOO LIGHT, WASHED OUT	GOOD PICTURE	FACIAL TONES TOO DARK	
COPY				
	GOOD COPY WITH 4-SECOND EXPOSURE	GOOD COPY WITH 7-SECOND EXPOSURE	GOOD COPY WITH 12-SECOND EXPOSURE	
ORIGINAL	COPY	<p>← NOTE: If original is much too dark, you can improve it even more than is shown above. For a picture as dark as the one at left, you should expose for as long as 25 seconds.</p>		

3. DEVELOPING THE COPY PRINT:

Ordinarily, the usual one-minute development time will give pleasing copies. However, it is sometimes possible to make noticeable improvement in quality as compared to the original by deliberately under-developing the copy to reduce "contrast". Contrast is a term relating to the "snappiness" of a picture. A very "contrasty" picture is one which has exaggerated white and black areas, with not too many subtle gray shades between. If you copy a very contrasty print, the copy will have more contrast if you develop a full minute. Reducing development time to *45 seconds* will soften the print and make it more pleasing. But do not develop less than 45 seconds, or you will begin to lose richness in the black areas.

Note that the outer rim of the timer dial carries a pointer, and that the entire rim can be rotated. At the moment you pull the tab, turn the outer rim to line up the pointer with the timer dial hand. Then, you'll be able to measure development time without having to remember where the dial hand was when you started.

Incidentally, it's probably best to remove the camera from the Print Copier when you develop a picture. That way, you'll be handling the camera in your normal fashion and won't risk pulling the tab incorrectly.

Gray Margins and Cropping

The Print Copier magnifies your picture about 4% to allow for framing and centering tolerances. This means that you will normally notice a very slight cropping of the picture along the edges. This cropping or margin should not exceed $\frac{1}{16}$ ".

If an important part of your picture is cropped out in the copy, this may be corrected by turning the original around in the Copier.

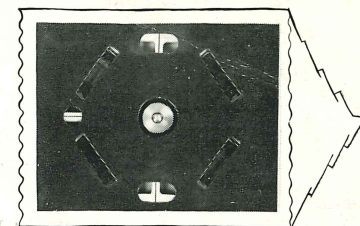
If your copies consistently show a big gray margin on one or more edges of the print (as along top and right of picture above), the rear door may need alignment, which can easily be done by following the instructions on the opposite page. However, before realigning rear door, examine several copies to make certain the gray line appears in the same place in all prints. If you notice that the problem is intermittent, or the size of the margin along the short end of the print varies, it is probably caused by failure to pull the tab to the same position each time. Be sure to pull the tab until it comes to a firm stop every time, because this is what locates the next picture in the camera.



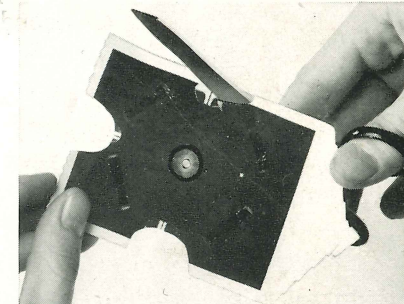
Adjustment for Centering

If the gray margin is excessive and consistent, it can be corrected by moving the picture frame in the rear door of the Copier. Adjust as follows:

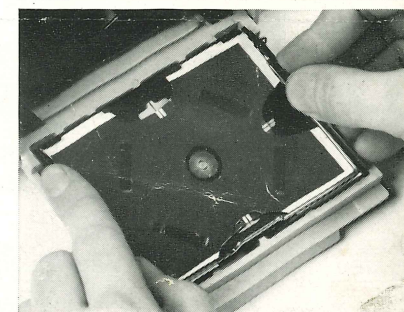
1. Make a 15-second exposure of the picture frame *without* a picture in place. It will look like this: Notice the three bright ovals with a line going through each of them.



2. With a scissors, make three semi-circular cuts in the picture, cutting in half the little black lines within each oval area, as shown at right. Straighten picture and remove tab.



3. Place this cut picture in the picture frame of the rear door. Loosen the screw in back of picture door with a penny so that the frame can be moved from side to side. Slide frame until all three lines in picture line up with lines in frame, then tighten the screw in back.

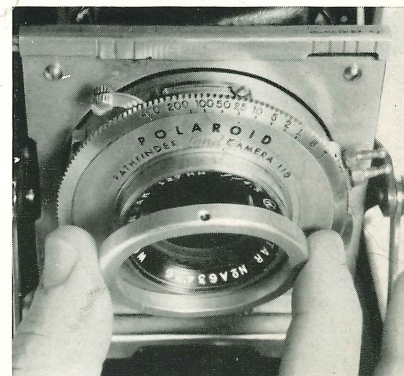


Once this adjustment has been made for your camera, it need never be made again.

Note: If you own the original Model 110 Pathfinder, you should use the adapter ring (shown at right) that came with your close-up lens or filter kit. If you do not have one on your camera or with one of these kits, write to:

POLAROID CORPORATION, DEPT. PC
Cambridge 39, Mass.

We will send you one without cost.



ADDITIONAL INFORMATION

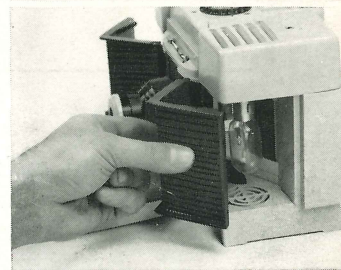
Self-Storing Cord

Your Polaroid Print Copier is equipped with a self-storing power cord for convenient storing. Simply wrap the cord around the outside of the legs on the bottom of the unit and press the rubber clip on the plug onto one strand of the cord.



To Replace Bulbs

Be sure hinged top and front pieces are in open position before attempting to swing open two dark gray doors. When fully open, doors permit easy access to light bulbs on either side of Print Copier. To remove bulb, press up, twist bulb slightly to left and remove. Replace with 25T8DC 115-125 volt bulb.



Light Reducers

Your Polaroid Print Copier is equipped with special light reducers to be installed for use with ultra high-speed Polaroid Land Films which will be available sometime in the future. These light reducers are stored in a black metal sleeve on the bottom of the Copier. Instructions for installing are printed on the protective paper covering the reducers.

Do not use these reducers on the 200 and 400 speed films.

Avoid Direct Sunlight

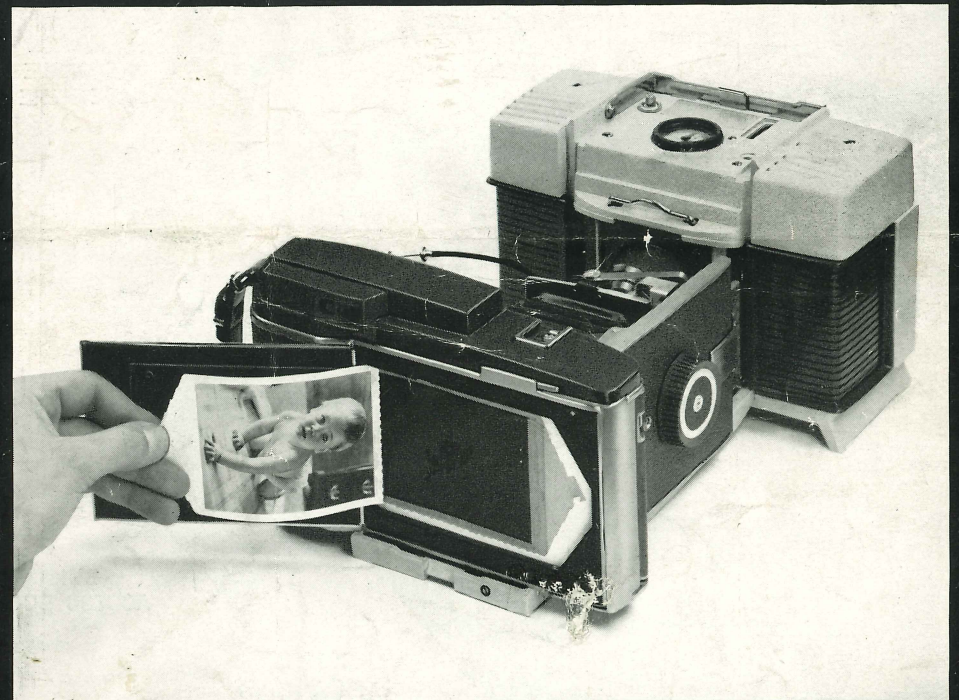
It is suggested that the Print Copier not be used in direct sunlight or near any very strong light source as extraneous light rays can cause white streaks on the picture as it is being copied.

GUARANTEE

Your Polaroid Print Copier is guaranteed against defects in materials or workmanship (except for light bulbs) for a full year following the date of original purchase. During this period, any such defects will be remedied without charge, (except for transportation) when Copier is returned through your dealer, or shipped express prepaid directly to Polaroid Corporation, Cambridge 39, Massachusetts.

A Product of
POLAROID CORPORATION
CAMBRIDGE 39, MASSACHUSETTS

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